JOHANNES KEPLER UNIVERSITY LINZ

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Talk announcement

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Topology optimization for electrical machines: a body-fitted approach and future applications to power electronics

Electrical machines, such as (PMa)SynRMs, are key components in achieving low-carbon mobility. In this talk, I will present an overview of the challenges in their design using a body-fitted (conformal mesh) topology optimization approach, particularly in the context of multi-material (n ¿ 3) optimization, where the remeshing step can be quite troublesome. I will provide insights into the shape sensitivities used to guide the evolution of the domain, especially regarding their interpretability in the case of dual energies as forces. Finally, I will discuss future perspectives for applying topology optimization to power electronics, from the silicium level to printed circuit board design and current shaping.